

Response and Amendment
Application No. 10/521,762
Filing Date: Jan. 21, 2005
Amdt. dated: Nov. 14, 2006
Reply to Office Action of: Aug. 14, 2006
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Amendments to the Claims:

All of the claims are set forth herein with the current status of each noted and the currently amended claims showing the changes made therein. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

- 1.- 13. (canceled).
14. (currently amended) A device for inspecting material comprising:

a single sensor device;

an illumination device;

at least first and second light sources in said illumination device;

a first inspection light emission of a first color emitted by said first light source, and a second inspection light emission of a second color emitted by said second light source, said first and second colors being different from each other;

at least first and second color channels in said single sensor device, each of said at least first and second color channels being matched to said first and second inspection light[[s]] emitted emissions from said first and second light sources, said at least first and second color channels receiving being adapted to receive said first and second inspection light[[s]] emissions that are at least one of passed through and reflected by the material and to record said first and second inspection light emissions together; and

an evaluation device adapted to separately process image content of each of said at least first and second color channels.
15. (canceled).

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16. (currently amended) The device of claim 14 wherein each of said at least first and second inspection light[[s]] emissions are ~~each~~ a substantially monochrome light color.

17. (currently amended) The device of claim 14 wherein at least one of

- (a) said emission's color spectral position and
- (b) said emission's bandwidth

of each said inspection light is matched to a transmission curve of said sensor device.

18. (previously presented) The device of claim 14 wherein said sensor device is a color line camera.

19. (previously presented) The device of claim 14 wherein said sensor device is a CCD camera.

20. (currently amended) The device of claim 14 wherein said sensor device has first, second and third color channels, wherein said illumination device has first, second and third light sources and wherein each first, second and third light sources emit first, second and third inspection light[[s]] emissions matched to properties of said first, second and third color channels.

21. (previously presented) The device of claim 14 wherein said at least first and second light source are arranged at first and second different positions relative to the material.

22. (previously presented) The device of claim 21 wherein said at least first and second light sources are each displaceable.

23. (currently amended) The device of claim 14 wherein at least one of said at least first and second inspection light[[s]] emissions passes through the material and another of said at least first and second inspection light[[s]] emissions is reflected by the material.

24. (currently amended) The device of claim 14 wherein at least one of said at least first and second inspection light[[s]] emissions is reflected by the material at a first angle and at least a second of said at least first and second inspection light[[s]] emissions is reflected by the material at a second angle.

25. (currently amended) A method for inspecting material including:

- providing a sensor device;
- providing an illumination device;
- providing at least first, second and third light sources in said illumination device;
- directing first, second and third inspection light[[s]] emissions from said first, second and third light sources, said first, second and third inspection light[[s]] emissions having first, second and third differently colored light[[s]] emissions;
- providing at least first, second and third color channels in said sensor device and being matched to said first, second, and third inspection light[[s]] emissions;
- providing an evaluation unit for separately evaluating said first, second and third color channels;
- reflecting a first one of said inspection light[[s]] emissions, at a surface of the material, from said first light source to said first color channel of said sensor device;
- reflecting a second one of said inspection light[[s]] emissions, at a surface of the material, from said second light source to said second color channel of said sensor device;
- passing a third one of said inspection light[[s]] emissions through the material from said third light source to said third color channel of said sensor device; and

using said first and said second reflected inspection light[[s]] emissions and said third passed through inspection light emission for simultaneously and separately performing two incident light inspections and one transmitted light inspection on said material.

26. (previously presented) The device of claim 14 wherein the material is a printed product including image information.

27. (previously presented) The method of claim 25 further including providing the material as a printed product including image information.

28. (new) An optical quality sensing system for inspecting printed material having a first surface opposing a second surface, comprising:

(a) a support adapted to orient and position printed materials for inspection, said support including a light transmissive region or aperture;

(b) a first inspection light source emitting light having a first color component and positioned to emit light emissions onto said printed material's first surface;

(c) a second inspection light source emitting light having a second color component and positioned to emit light emissions onto said printed material's first surface;

(d) a third inspection light source emitting light having a third color component and positioned to emit light emissions through said support's light transmissive region and onto said printed material's second surface;

(e) a light sensor adapted to separately sense and evaluate light emissions in said first color, said second color and said third color, and positioned proximate said printed material's first surface;

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(f) wherein said first color component, said second color component and said third color component may be combined or superimposed to generate a composite light emission having any color in the visible light spectrum, including white light;

(g) said light sensor being configured to receive said first light's emissions as reflected from said printed material's first surface, and to generate a first light inspection signal in response thereto;

(h) said light sensor being configured to receive said second light's emissions as reflected from said printed material's first surface, and to generate a second light inspection signal in response thereto; and

(i) said light sensor being configured to receive said third light's emissions as transmitted through said printed material's and emitted from said first surface, and to generate a third light inspection signal in response thereto.

29. (new) The optical quality sensing system for inspecting printed material of claim 28, wherein said wherein said first color component is selected from a group comprising red, green and blue.